

A Great Military Balloon.

A large dirigible balloon is being constructed at the military balloon works at Chalais-Meudon, under the direction of Commandant Renard. It will be similar in form to the La France of 1884-5, but longer; measuring about 230 feet in length and 43 feet in its greatest diameter. By a new arrangement of motor it is expected to be able to make headway against air currents not exceeding 40 feet per second, or 28 miles an hour. The motor is not fully described, but it will act either with gasoline or the gas of the balloon, giving an effective force of 45 horse power on the shaft. The total weight of machinery, with supply of gasoline, etc., will be about 66 pounds per horse power. Previously it has not been possible to make petroleum motors with a less weight than 150 to 200 kilogrammes per horse power. The screw will be in front, and a large rudder behind; the former will make about 200 turns per minute. The first experiments with this balloon are, it is said, to be made in the early spring.

PERFORMING CATS.

A very remarkable exhibition of performing cats has been produced recently in this city, some features of which we illustrate. As the art of wheeling is now attracting much attention, our performers show how nearly they can come to propelling a velocipede. The cat, it will be noticed, prefers to use her fore feet, much as if a man propelled himself by his hands. The plunger mechanism for reaching the cranks is intelligible from the cut. It is questionable if the cat would not prefer her natural method of progression. She shows no signs of developing into a bicycle crank. The question of dress for wheeling need not agitate the lady cats, Jenness Miller and divided skirts not being within their ken.

Next we see a cat pulling a roller, on which a second cat is riding and working her passage treadmill fashion. By proper application of her energy, it is evident that the rider could do her part in accelerating the progress of the machine. Whether she does so or not, may be doubted.

These two achievements are striking, although somewhat in the line of the ordinary acrobaticism displayed by cats in their rambles over roofs and fences. But the third act depicted by our artist shows us our feline friend in a new role, that of fire king. The trainer holds up two hoops which have been dipped in naphtha, which is all ablaze. The cat at the word, starting from a spring board, jumps through the hoops and passes the ordeal unscathed. The jump is repeated a number of times.

The passion of humanity for seeing animals do abnormal things would seem to be gratified in this exhibition. At the same time the training of cats to do these feats really constitutes an achievement and in that sense seems worthy of due recognition.

The above constitute the principal performances, but others are also shown. Thus a wagon load of cats is drawn by their comrades. The performances take place on an oblong table, with large opening in its center where the exhibitor keeps himself.

Mails Burned.

In consequence of the recent collision on the Pennsylvania Railroad near Dean's Station, N. J., the mail car was consumed so rapidly that it was impossible to save anything. There was a four-wheel truck load of mail from Philadelphia, destined for New York City, Boston, Springfield, Providence, and intermediate points, and three pouches from Trenton for New York and Jersey cities.

The transfer agents also reported that some of the pouches which should have been received three hours

earlier are also missing, and were probably in the burned train. These contained mails from Philadelphia and Baltimore for New York and Brooklyn; also the departmental mail from Washington for New York, Rochester, and intermediate points, besides pouches from Lancaster, Pa., Chester, Pa., and Wilmington, Del., containing mails for this city.

Correspondents of the SCIENTIFIC AMERICAN whose letters prove to be missing should bear in mind these serious losses of mail matter.

A NOVEL TOY.

The annexed engraving represents an amusing toy recently sold on the streets of New York. It is not



THE "MIKADO," A NEW TOY.

particularly scientific, but it shows how a device having little novelty finds sale in places traversed by the multitude.

It consists of the figure of a Japanese in sitting posture, representing the "Mikado." In his right hand he holds a Japanese umbrella, and in his left a fan. The umbrella is provided with a little reel at

figure and grasps a fan, as shown in Fig. 2. When a cord is wound around the reel at the top of the umbrella, and drawn off after the manner of top spinning, the umbrella spins, giving a rotary motion to the beveled wheel, and the crank pin projecting from the wheel imparts an oscillating motion to the arm carrying the fan. The umbrella being slightly out of balance gives a vibratory motion to the figure, which causes it to rock slightly and turn upon its support.

Aids for Temporary Star Search.

The following extract from a note by Mr. D. E. Packer in *English Mechanic* may be of use to some of our readers:

"During the recent summer months, in our leisure evenings, Mr. Morris, of Cambridge, and myself were engaged in searching the heavens (especially the Milky Way region) for the detection of new stars. In order to expedite our search, we adopted a scheme which, I think, will find favor with those who are similarly occupied on starry nights, and for which we strongly advocate a trial. We used the excellent maps in Schurig's 'Tabulæ Cœlestis,' which give all, or nearly all, stars down to the sixth magnitude. The charts were photographed on quarter plates, and the negatives, backed by tissue paper or an ordinary screen glass, were projected in front of a small bull's-eye lantern. A convenient method was thus obtained of comparing any portion of the chart with its corresponding portion in the heavens. It only required the use of an ordinary magnifier to enlarge any portion of the photographed chart to render comparison easier, and the apparatus was complete. The ease and comfort with which considerable areas of sky were swept over, and the enormous saving of time which this method affords over the ordinary method, a trial will suffice to show. Regions near the zenith were viewed by projection in an ordinary mirror, the photographed chart being correspondingly inverted."

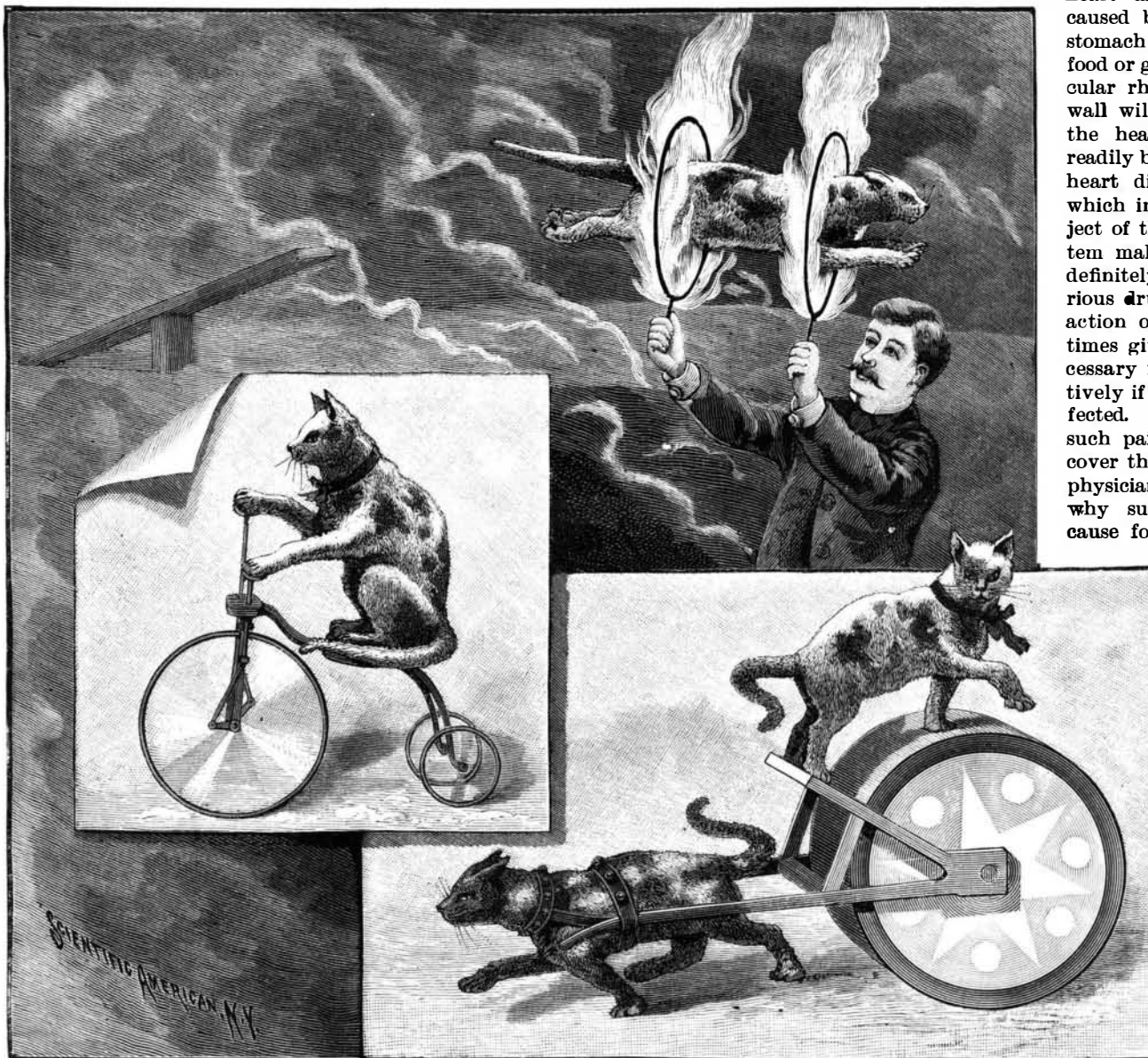
Pains in the Heart Region.

Pains in the region of the heart, says a writer in the *New York Ledger*, are common, and the general dread of this disease makes many people imagine that they have heart disease when there is any local affection in this region. Many who think they are suffering from

heart disease have their pain caused by the pressure of the stomach when distended with food or gas. Neuralgia or muscular rheumatism of the chest wall will give similar pains in the heart region, which may readily be thought to come from heart disease. The obscurity which involves the whole subject of the heart's nervous system makes it impossible to tell definitely about such pains. Various drugs, which will slow the action of the heart, will sometimes give relief. But it is necessary first to ascertain positively if the heart is really affected. Those who suffer from such pains can frequently discover the cause better than the physician. There is no reason why such pains should give cause for alarm. Even though

neuralgia or rheumatism is causing pain in that region, it is not essentially dangerous. The best plan at such times is to keep in a dry place, avoid draughts of wind, rain or wet weather, and remain in a lying posture for hours. This gives the heart rest and gradually strengthens it. Hot, dry applications over the region are always good. Those suffering from neuralgia and heart disease should always apply hot flannels over the region of the heart when the pain is severe. This will prevent the neuralgia from settling in this organ, the most dangerous spot.

THE municipality of Cadiz, Spain, offers a premium of 30,000 pesetas (\$6000) to the author of the best plan for a proposed sewerage system. The competition remains open until December 20, 1893.



PERFORMING CATS.

the top. The stick of the umbrella, in this case, is formed of a tube which is held by the hand of the Mikado, and a spindle attached to the umbrella top and passing through the tube with its lower end resting upon a beveled wheel journaled within the figure. The beveled wheel carries a crank pin working in a slotted arm that extends through the side of the